Improved Navy Lighterage System Familiarization Brief September 2004 POWG

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PURPOSE

Familiarize stakeholders with INLS

AGENDA

- Requirement
- System Description
- INLS vs. NL
- Module Description

INLS REQUIREMENT

- Legacy Navy Lighterage (NL) system is at end of useful life
- Analysis of Alternatives for replacement system determined
  - Causeway ferry system most cost effective
  - Barge monohull better than pontoon due to
    - Reduced corrosion
    - Easier maintenance
    - 20+ year life
    - 4 foot freeboard at full load
- INLS vs replacement in kind
  - INLS more economical than NL replacement in kind
  - INLS more capable than NL
    - Faster, greater lift capacity, higher seastate
  - INLS designed for SS2+ – **NL replacement essential**

CENTER FOR NAVAL ANALYSIS THROUGHPUT STUDY

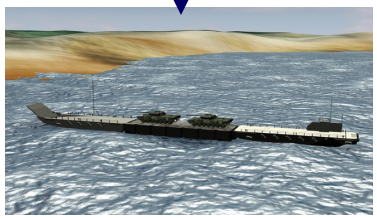
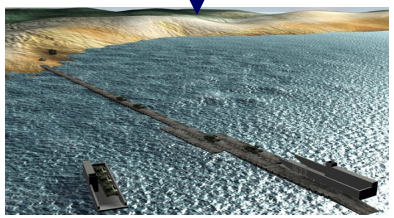
Determined INLS quantity required to offload MPSRON

- Completed March 2002
- Assumptions:
  - Ship to shore range – 3 nautical miles
  - Ferry speed – 10 knots
  - Quantity based on providing offload timelines equivalent to NL
- Results
  - 12 CF MPSRON - 9.1 day off load
    - 12 CFPM, 15 IM, 12 BM; configured as 5-1+3, 5-1+2, 2-1+1
  - 10 CF MPSRON - 9.3 day off load
    - 10 CFPM, 15 IM, 10 BM; configured as 5-1+3, 5-1+2
  - RRDF not recommended
    - RRDF = 7 CM, 1 RM, 1 DM
  - WT requirement 3 vice 5
- Programmed Quantities per MPSRON
  - 12 CF (CF = 1 CFPM, 1 IM/CM, 1 BM), 5 WT and 1 RRDF

INLS DESCRIPTION

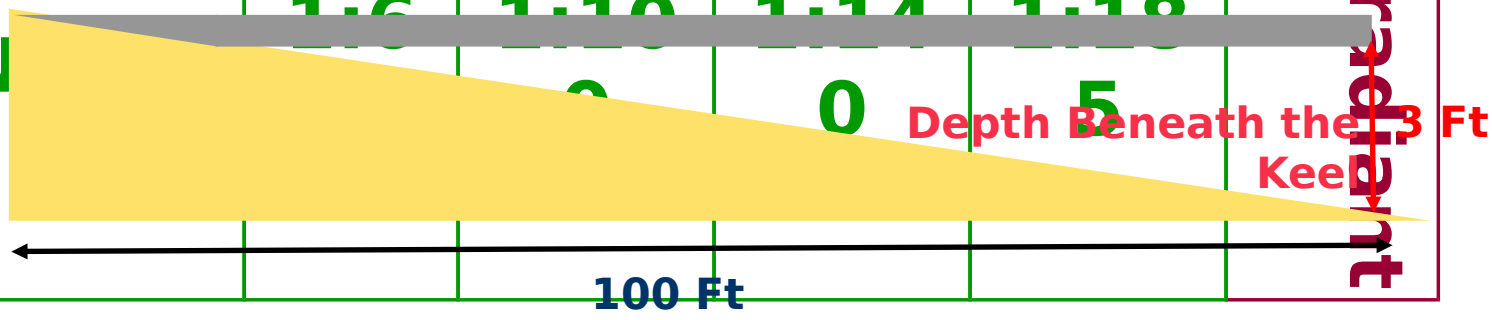
- System components
  - Powered or non-powered floating barges
  - Warping Tug (WT)
- Barges can be assembled into following platforms:
  - Roll-On/Roll-Off Discharge Facility (RRDF)
  - Causeway Ferry (CF)
  - Floating Causeway (FC)
- System draws heavily from
  - Current commercial tugboat technology
  - Lessons learned/information obtained from JMLS

INLS vs. NL

	Warping Tug	Causeway Ferry	Roll On/Roll Off Discharge Facility	Floating Causeway Admin Pier (AFOE)
NL	SLWT ▪ 7 knots ▪ Sea State (SS) 2	CSP ▪ 3 knots ▪ 205 tons	RRDF ▪ 6 (7) Section ▪ ~ 270ft x 42ft ▪ Not ILP capable	Admin Pier • Mooring of Lighterage • Crew Changes • 900 Ft. Long - 12 Sections • Discharge Capable
INLS				
	WT • 10 knots • Operate SS4 • Survive SS5 • Crew	CF • 10 knots • Operate SS ≥ 2 • Survive SS4 • Capacity – 300 tons • Crew Space	RRDF ▪ 9 Section ▪ ~ 240ft x 72ft ▪ May be ILP capable ▪ Crew shelter	FC • Mooring of Lighterage • Crew changes/shelter • 1200 Ft. Long - 19 Sections • Discharge Capable

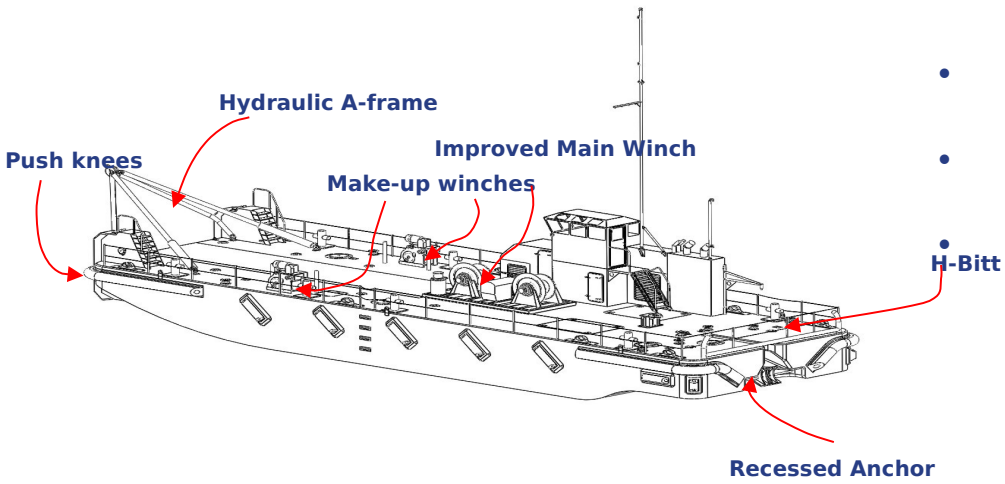
INLS VS NL BEACH GRADIANT LIMITATIONS

System	Ferry Configuration 1+1	1+2	1+3	1+4
NL	1:40	1:70	1:100	1:130
INLS	1:6	1:10	1:14	1:18

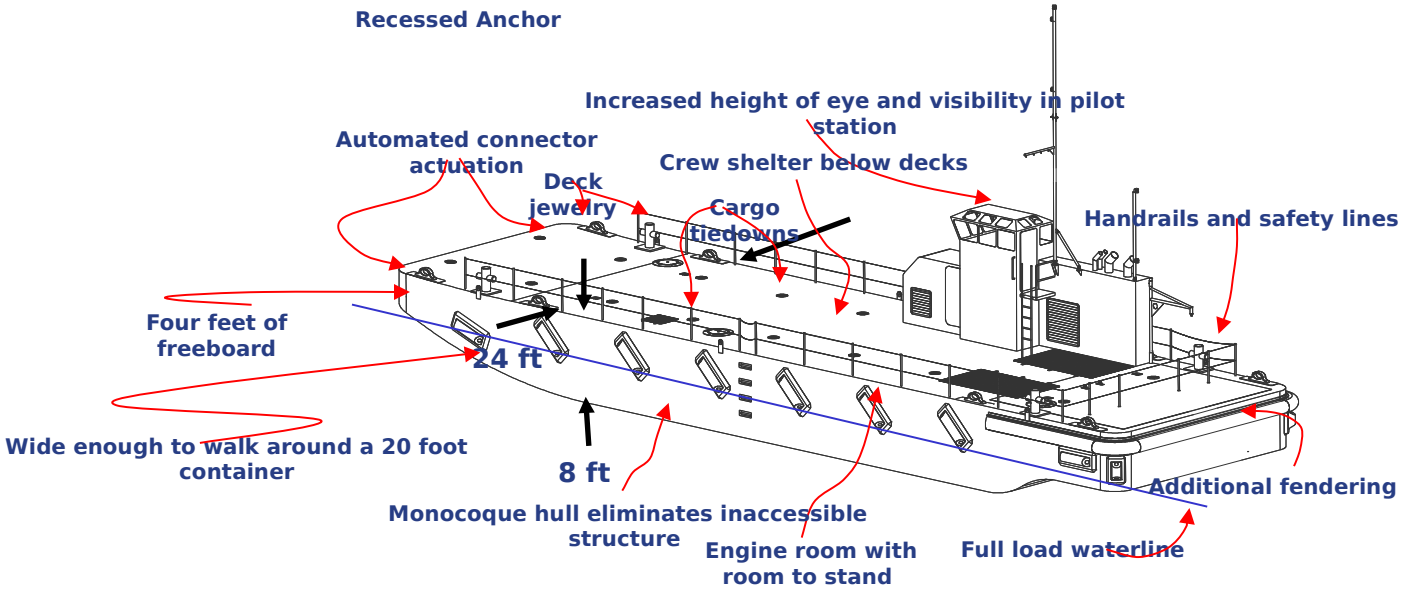


3:100 = 1:33 Beach gradient

INLS POWERED MODULES



- Weight limitation driven by MPF ship crane capacity
- Weight limitation for fully fitted-out module:
  - WT/CPFM: 115 Lt
- Size: 87’ x 24’
  - 24’ - Allow walk space around TEU
- Below decks crew space with head


Increased height of eye and visibility in pilot station
Automated connector actuation
Crew shelter below decks
Deck jewelry
Cargo tiedowns
Handrails and safety lines
Four feet of freeboard
24 ft
Wide enough to walk around a 20 foot container
8 ft
Additional fendering
Monocoque hull eliminates inaccessible structure
Engine room with room to stand
Full load waterline

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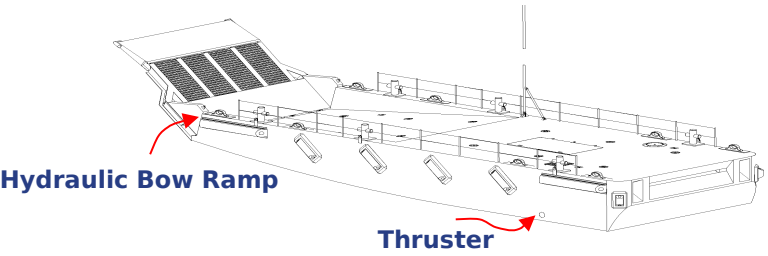
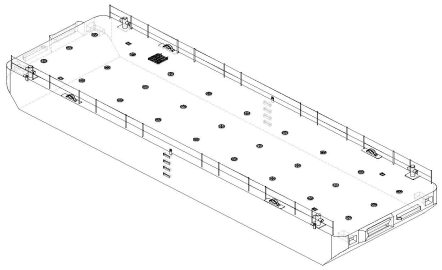
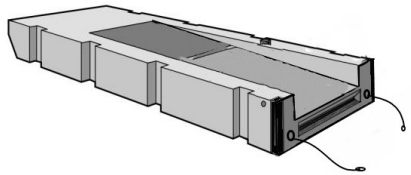
INLS MODULES



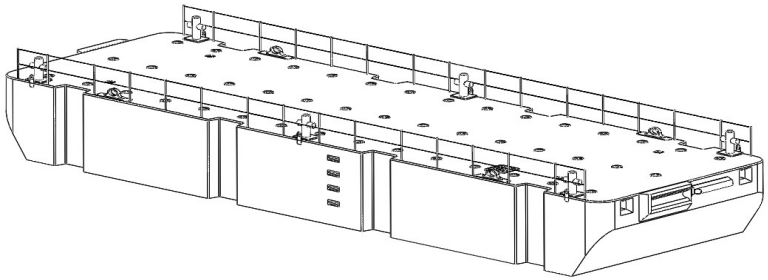
BEACH MODULE (BM)
- CF Component
- 80’ L x 24’W x 8’ H
- 90 LT



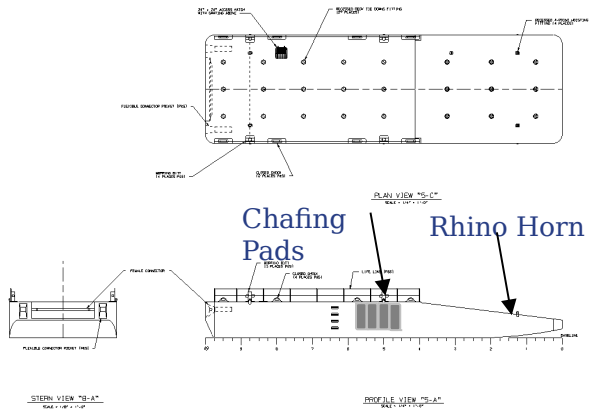
INTERMEDIATE MODULE (IM)
- CF component
- 80’ L x 24’W x 8’ H
- 70 LT



DOCKING MODULE (DM)
- RRDF & FC Component
- 80’ L x 24’W x 8’ H
- 83 tons

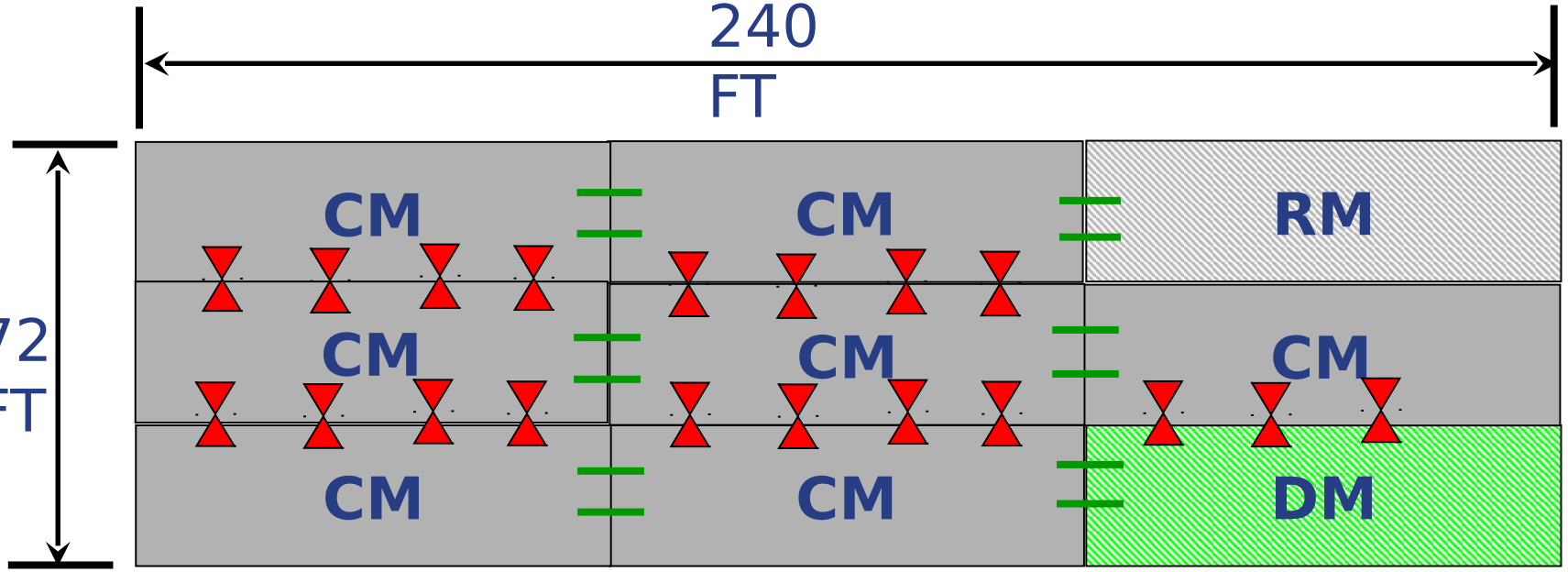


COMBINATION MODULE (CM)
- RRDF& FC Component
- 80’ L x 24’W x 8’ H
- 83 LT
- Accommodates Side Connection
- Can function as IM



RAMP MODULE (RM)
- RRDF and FC Component
- 80’L x 24’W x 8’H
- 69 LT
- Accommodates watercraft interface

ROLL-ON/ROLL-OFF DISCHARGE FACILITY



Rigid Side Connector

Flexible Connector

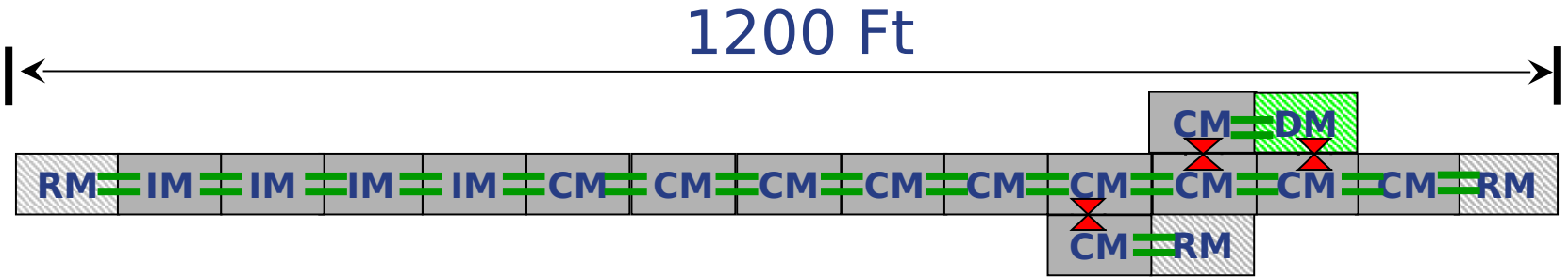
Roll-on/Roll-off Discharge Facility (RRDF) Components

1 - Ramp Module (RM)

7 - Combination Module (CM)

1 - Docking Module (DM)

FLOATING CAUSEWAY



Rigid Side Connector

Flexible Connector

Held in place by

32 mooring anchors

Floating Causeway Componer

3 - Ramp Module (RM)

4 - Intermediate Module (IM)

11 - Combination Module (CM

1 - Docking Module (DM)

CONCLUSION

- NL system is at end of life
- INLS determined most economical replacement
- INLS procured as NL replacement and capability improvement
- Individual INLS systems will be more capable than NL
- INLS meant to bridge the gap between MPF and MPF (F)

QUESTIONS?

INLS vs NL

NL	INLS	Speed		Weight (LT)		Capacity (LT)		Length (FT)		Height (FT)		Width (FT)		SS	
SLWT	WT	7	10	102	115	N/A	N/A	90	87	5	8	20	24	2	4
CSP	CFPM	3	10	98	111	99	62	90	87	5	8	20	24	2	2+
CIN	IM			70	70		125	90	80	5	8	20	24	2	2+
CINR	CM				83		112	90	80	5	8	20	24	2	2+
CBE	BM				90		92	90	80	5	8	20	24	2	2+
COS	RM				69			90	80	5	8	20	24	2	2+
N/A	DM				83			90	80	5	8	20	24	2	2+